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Exporting and Institutions: Firm-Level Evidence from Malaysian Manufacturing

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Keywords: Trade, Institutions, Malaysia
JEL classification: F15, F53

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Firm-Level Evidence from Malaysian Manufacturing

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Institutions are regarded as critical determinants of economic growth. Recent theories have posited a positive relationship between trade and institution quality. Most empirical work on trade and institutions has mostly relied on cross-country panel data. Using firm-level data from Malaysian manufacturing, this study aims to empirically examine this relationship. The results on the relationship between exporting and institutions indicate that perceptions of court fairness are negatively related to exporting. Furthermore, the result for trade-related institutions is not statistically significant. A key limitation of microdata studies is the lack of responses to survey questions pertaining to corruption. Additionally, more effort is required to develop better proxies for measuring the quality of institutions at the micro-level.

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1. Introduction

Since the 1960s, Malaysia has been a relatively successful exporter of manufactured goods. The country's share of global exports in manufactured goods peaked at 1.7% in 2000 (**Figure 1**). The subsequent decline in the country's share of global manufactured exports after 2000 demonstrates how difficult it has become to sustain a competitive export-oriented manufacturing sector in the country. Given the importance of exports to the manufacturing sector, a decline in manufactured exports has also resulted in a decline in the manufacturing sector's GDP share (**Figure 2**). Because the relative decline in manufacturing's role in the economy is occurring while the country remains a middle-income country, this phenomenon is described as premature deindustrialization.

Several studies have investigated the drivers of Malaysia's premature deindustrialization. These include interconnected factors such as weak education system and human capital, an over-reliance on foreign workers, a lack of innovation, and a decline in global value chain (GVC) participation. Another possible factor is the long-term decline in the quality of the country's institutions. This could be a more fundamental long-term factor adversely influencing economic performance. In fact, institutions have been increasingly regarded as key drivers of long-term growth (Acemoglu et al., 2005). The emerging trade literature emphasizes the importance of institutions in trade. Thus far, the role of institutions in trade in Malaysia has not been empirically examined.

This study aims to examine the relationship between manufactured trade and institutions using microdata. More specifically, it examines the extent to which exporting activities are related to institutions. It seeks to address whether institutional factors affect firms' exporting activities.

The remainder of this study is organized as follows. Section 2 provides a brief review of the literature. Section 3 investigates the relationship between trade and institutions in Malaysia. Section 4 outlines the methodology used. Section 5 summarizes the results. Finally, Section 6 concludes the paper.

2. Literature Review

Historians and economic historians have long recognized the importance of institutions in trade (Bardhan, 2006; Greif, 2006). Formal empirical economic analyses on trade and institutions flourished with the availability of cross-country panel data on the quality of institutions.

Dollar and Kraay (2003) conducted an early study that examined how trade and institutions influence economic growth. They found that trade is an important driver of growth over a shorter time period. However, both trade and institutions (as proxied by the rule of law) are important long-term growth determinants.

Levchenko (2007) modeled institutional comparative advantage using an incomplete contract framework. He examined the extent to which countries with strong institutions capture US imports. In the study, an index of the rule of law is used to proxy institutional quality. Overall, the study finds that institutional quality (rule of law) affects trade gains (country's share of US imports).

Nunn (2007) examined whether better contract enforcement is associated with increased exporting in industries where relationship-specific investments are important. The study also employs the rule of law as a measure for institutional (judicial) quality. The study found that the trade pattern is determined by institutions, in that the quality of contract enforcement is associated with specialization in the production of goods where relationship-specific investments are important.

Using historical data from 19th-century Europe, Keller and Shiue (2008) investigated whether institutions and technological change affect market size. They found that technology has a greater impact on market size increase than trade liberalization. Furthermore, institutions (the abolition of serfdom) played an indirect role via technology (steam trains).

Nunn and Trefler (2014) reviewed and found evidence on domestic institutions as a source of comparative advantage in trade. Institutions affect comparative advantage through different channels. However, reverse causality, that is, trade affects institutions, is also important.

3. Trade and Institutions in Malaysia

Malaysia has historically been a small open economy that relied heavily on exports as a growth engine. However, the role of trade has been declining since 2000. The country's trade ratio, which is calculated by total exports and imports as a percentage of GDP, peaked at 220% in 2000 and subsequently declined to 116% in 2020 (**Figure 3**). In addition, the country's share of global manufactured exports has decreased from 1.5% in 2000 to 1.2% in 2017 (**Figure 4**). The Malaysian government, through its *National Trade Blueprint 2021–2025*, has recognized this as indicative of a decline in the country's export competitiveness:

> Having experienced a slower pace of export performance growth, Malaysia has been losing market share to the rest of the world in the past decade. Being an export-oriented nation, Malaysia has over the years slipped in the annual export ranking. (Malaysia, 2021, p. 9)

Productivity, human capital, business operating costs, export facilitation, and market access and promotion are among the factors identified in the Blueprint to affect export performance (Malaysia, 2021, p. 10).

Despite the importance of institutions, this is not mentioned as an important factor in the policy. This is not surprising given that institutions are frequently overlooked as a policy variable in trade policy. Institutional factors are frequently regarded as exogenous to trade policy. However, the literature on the political economy of trade recognizes the importance of institutions. Rodrik (1995) framed this regarding trade policy demand and supply. On the demand side, individuals' (including voters') preferences for trade policies are aggregated through pressure groups, political parties, or grass-roots movements. On the supply side, political leaders' choices shape policymakers' preferences for trade policy. The interactions between demand and supply determine the country's trade policy orientations and directions.

Using Rodrik's (1995) framework to examine Malaysia's experience, we can deduce that political institutions and developments shape the economy's investment regime and trade orientation. Between Malaysia's independence in 1957 and 2018, the country was ruled by the same political coalition, the Barisan Nasional (BN). Following the defeat of the BN by the Pakatan Harapan (PH) in the country's 14th general elections in 2018, some institutional reforms were implemented, and senior BN politicians (particularly from the United Malaysia National Organization, UMNO) were prosecuted for corruption. However, the reform period was only two years long. Political defections overthrew the PH government, restoring power

to UMNO-affiliated politicians. This two-year blip can be seen in the country's improvement in terms of the corruption index performance from 2018 to 2019 (**Figure 5**).

Other indicators of the quality of Malaysian institutions can be found in the World Bank's World Governance Indicators (WGI). It measures perceptions on six areas of governance (**Table** 1). These indicators are compiled from various sources, including informed experts, firm surveys, non-governmental organizations, and public sector organizations (Kaufman et al., 2009). Most of the empirical literature has used the rule of law as a proxy for institutional quality. The WGI goes beyond this by incorporating the political institutions via the voice and accountability indicator.

Interestingly, Malaysia's governance indicators improved from 1996 to 2012 (**Figure 6**). However, these indicators began declining after 2012, particularly in voice and accountability, the rule of law, and corruption control. A few indicators declined after 2017, namely, regulatory quality, and government effectiveness. Overall, the decline in the trade ratio began earlier (around the year 2000) than the decline in institutional quality. This would seem to imply that the quality of institutions did not harm trade competitiveness between 1996 and 2011.

Given the small number of observations (i.e., 24 years), empirically testing this relationship between trade and institution at the aggregate level is challenging. One possible empirical strategy is using firm-level data to test whether institutional-related variables are relevant. This allows for more observations across firms, but it has limitations in terms of time variations. This is explored in the following section.

4. Methodology

The majority of the literature on trade and institutions is based on cross-country data. This literature is driven primarily by country-level data on the quality of institutions. The WGI database is one example of such data. In this study, we use institutional variables constructed by using microdata.[1]

[1] The institutional variables based on the WGI include both objective and subjective indicators. The latter may contain measurement errors. The survey response regarding the payment of bribes (corruption) to authorities is an objective measure. In contrast, perceptions about court's fairness is a subjective measure.

We examine exporting activities in terms of exporting propensity and exporting intensity at the firm-level. The model's explanatory variables include firm characteristics, trade liberalization, and institutions. Trade and governance institutions are the two types of institutions under study.

The firm-level data for this study were derived from the World Bank's Enterprise Survey for Malaysia, which was conducted in 2015. The sample data include 581 manufacturing firms. It may be useful to take note of the dataset's sampling properties. This can be analyzed by comparing it with the Department of Statistics Malaysia's national manufacturing census. The firms in the World Bank dataset are larger in size, and a higher proportion of them are exporters.

The econometric specifications for firm *i* in industry *j* based on the Heckman method take the following forms:

Selection equation (propensity)

$$EXP_{ij} = \alpha_0 + \mathbf{FIRM}_i'\boldsymbol{\alpha}_1 + \alpha_2\, Tariff_j + \alpha_3\, CourtFairness_j + \varepsilon_{ij}, \quad (1)$$

Outcome equation (intensity)

$$EXPPCT_{ij} = \beta_0 + \mathbf{FIRM}_i'\boldsymbol{\beta}_1 + \beta_2\, Tariff_j + \beta_3\, CourtFairness_j + \beta_4\, ExportGift_j + \varepsilon_{ij}, \quad (2)$$

where *EXP* is a dummy variable taking a value of one for exporting firms, and *EXPPCT* is the percentage share of export sales in total sales in exporting firms. A vector of **FIRM** is the set of firm characteristics and performance that includes the firm's age (*Age*), size (number of employees, denoted by *Workers*), foreign ownership (percentage equity owned by private foreign individuals, companies, or organizations, denoted by *Foreign Ownership*), product innovation (*Product Innovation*), and quality certification (*Quality Certification*). Continuous variables include age, size, and foreign ownership. Meanwhile, the dummy variables are product innovation and quality certification.

The *Tariff* variable is Malaysia's most favored nation (MFN) rates in 2014. This variable is created by taking the average of tariff-line MFN rates at the four-digit ISIC level. These data are sourced from the World Integrated Trade Solutions database. Although firms' exports are being studied, we impose tariffs on imports. We expect that this import tariff variable will control for tariffs imposed when importing intermediate goods within a given industry, although not all firms necessarily engage in importing.

Two types of institutional variables are used. *CourtFairness* is a governance-related institutional variable at the industry-level. The variable rule of law is used in this study. The

survey question asks whether the court system is fair, impartial, and free of corruption. A dummy variable is created, with a value of 1 if the respondents agree and strongly agree, and 0 otherwise. Because many firms did not respond to this question, the average industry value is computed. The industry average is also used to avoid endogeneity bias. In particular, exporting behavior might be associated with responses to institutional questions. In this case, unobservable elements may affect both exporting and institutional variables. To reduce endogeneity bias, we examine institutional variables defined at the industry-level.

ExportGift is an industry-level trade-related institutional variable. The survey question is posed whether when exporting goods directly, a gift or informal payment was expected or was requested in order to clear customs. The response is in binary form (yes/no). Because many firms did not respond to this question, the average industry value is calculated to address the endogeneity issue. As a result, the *CourtFairness* and *ExportGift* variables used in this study are both dummy variables. We also include interaction terms for these institutional variables with firm size in the outcome equation (i.e., the intensity equation) to examine the heterogeneous effects of institution across firms.

5. Empirical Analysis

5.1 Summary Statistics

The summary statistics for the data are presented in **Table 2**. About half of the firms in the sample are exporters. Only 12% of the firms innovated their products. Moreover, approximately 40% of the firms in the sample possess internationally recognized quality certifications. The average age of the firms is 45 years, and the average number of employees in the firms is 223 people. Foreign equity participation accounts for approximately 25% of the firms.

Regarding the institutional variables, a sizable proportion of respondents (175 or 30%) disagreed or strongly disagreed with the statement that the court system is fair, impartial, and free of corruption. For the question regarding payment of gifts for export custom clearance, only 13% of those who responded paid gifts or informal payments to public officials.

Note that one major issue with the institutional variables is that the response rate for questions related to corruption is low. This is obviously a sensitive question that many firms would rather

not reveal in the survey. As previously stated, we use their industry average in our econometric analyses.[2]

5.2 Industry Variations

(a) Total Firms

The sample data are slightly skewed toward a few industries, namely, food (27%), electronics (16%), chemicals (15%), and garments (11%) (See **Table 3**). Except for the food industry, the majority of these industries are export-oriented. They constitute 68% of the total firms in the sample data. Many industries have a small sample size, resulting in under-sampling: paper (n = 2), recycling (n = 2), precision equipment (n = 3), and leather (n = 4).

(b) Exporting

In most industries, the proportion of firms exporting is fairly high (**Figure 7**). Paper products (100%), precision equipment (100%), transportation machines (83%), refined petroleum products (75%), and textiles (72%) are among the industries with a high proportion of exporting firms.

(c) Fairness of Courts

In terms of firms' perceptions of court fairness, the percentage of firms indicating that courts are fair (yes) exceeds 50% in most industries (**Figure 8**). There are variations across industries. For some industries, sampling issues are likely to skew the tabulation of firm response distributions. For example, in the paper industry, there were only two firms in the sample. The information on the firms is divided into five regions: four in Peninsular Malaysia (Central South, Nort, and East Coast) and one in East Malaysia. In terms of location, differences exist in the percentage of firms that believe the courts are fair. The response rate to fair court is relatively high in three regions, namely, Central, South, and East Coast, compared with North and East Malaysia.

[2] Therefore, *CourtFairness* and *ExportGift* may be upper and downward biased, respectively. For example, in the question for *CourtFairness*, firms that think the court system is unfair may be more likely to refuse responding, resulting in missing data. Although these data characteristics may be associated with export behavior and yield endogeneity bias, we leave this issue for a future study.

(d) Payment of Gifts for Export Custom Clearance

The percentage of firms that reported paying gifts or informal payments for export customs clearance is relatively low (**Figure 9**). Firms involved in the payment of such gifts are typically younger and larger in size (measured in terms of the number of workers). A few industries, namely, refined petroleum product, fabricated metal product, and textiles, have a relatively high percentage of firms engaged in such activities. Meanwhile, the percentage of firms indicating payment of export gifts is high in three regions: North, East Coast, and East Malaysia.

5.3 Econometric Analysis

Table 4 shows the Heckman estimates for exporting and institutions. The likelihood-ratio test yields a reasonably high value, which justifies our estimation of two equations as the Heckman model. In the selection equation, foreign ownership, product innovation, and quality certification all have significant positive coefficients. These results suggest that foreign-owned firms, product innovators, and firms producing high-quality goods are more likely to export. In the intensity equation, these variables also have significantly positive coefficients. In contrast, the coefficients for firm age and number of employees in both equations are insignificant.

Higher import tariffs are associated with higher export propensity and intensity. This result contradicts the expected link between trade liberalization (lower import tariffs on intermediate goods) and exporting. One plausible explanation is an infant-industry-type of argument in which domestic market protection aids firms in developing export capabilities. Given the cross-sectional nature of the estimates, better data will almost certainly be required to test this.

Almost all variables related to institutions have insignificant coefficients. A significant coefficient can be found only in *CourtFairness* in the selection equation. However, its negative sign is the inverse of our expectation. The coefficients for the other institution-related variables, including the interaction term with firm size, are insignificant. Thus, in our cross-firm analyses, we do not find a significant contribution of institutions to firms' exporting activities.

6. Conclusions

Institutions have been identified as a critical driver of economic growth. It is natural to posit institutions as an important driver of trade because trade is an important driver of growth for many countries. The majority of empirical research on the relationship between trade and institutions has relied on cross-country panel data with narrow proxies for institutions. As empirical work in international trade has increasingly focused on using micro-level data, we can naturally extend this focus to empirical work on institutions and trade.

This line of empirical inquiry is fraught with difficulties, as this paper demonstrates. One significant challenge is that firm-level surveys rarely capture information about the quality of institutions. Another challenge is the sensitivity of questions about the quality of institutions associated with corruption. As a result, very few of the firms polled would respond to questions relating to corruption.

This paper investigated the relationship between exporting and institutions using the World Bank's Enterprise Survey for Malaysia. The results are generally weak, which could be attributed to a poor response to questions about institution quality and the weak proxy for institution quality. However, such limitations highlight the importance of further improving the quality of data on institutions.

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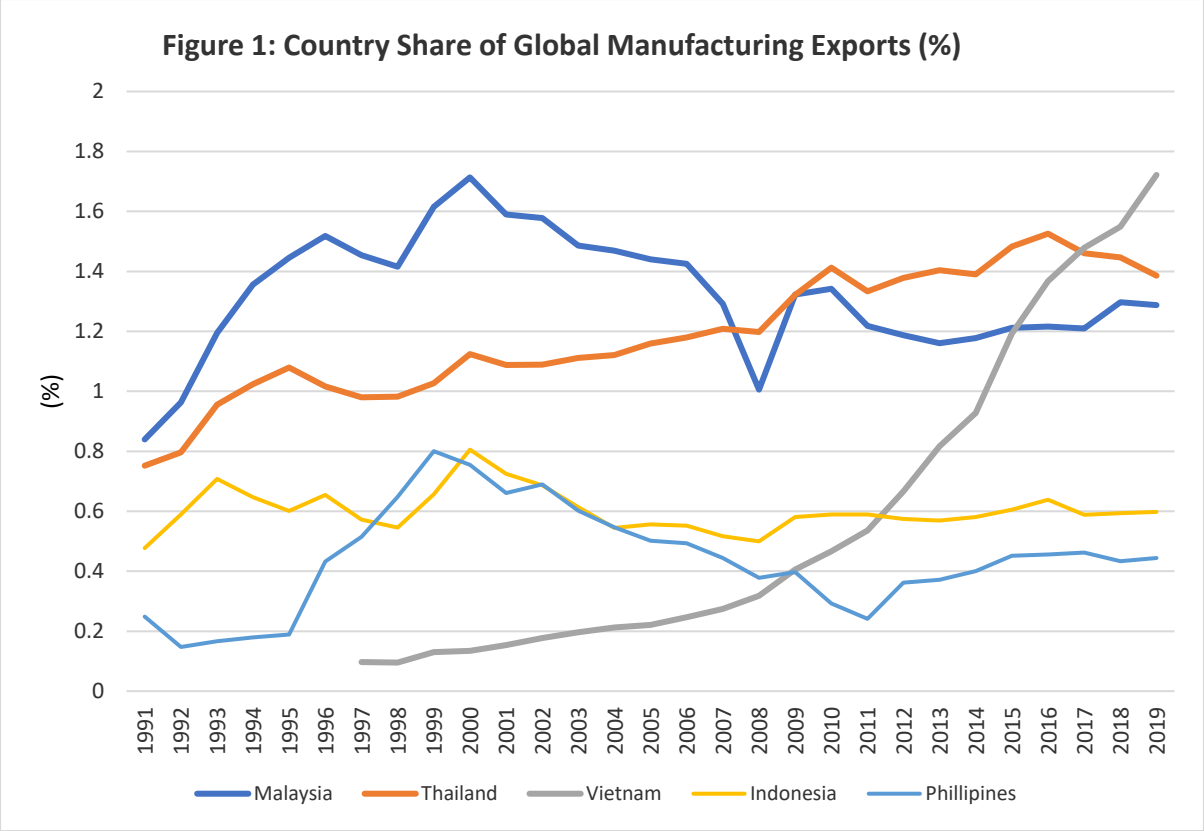

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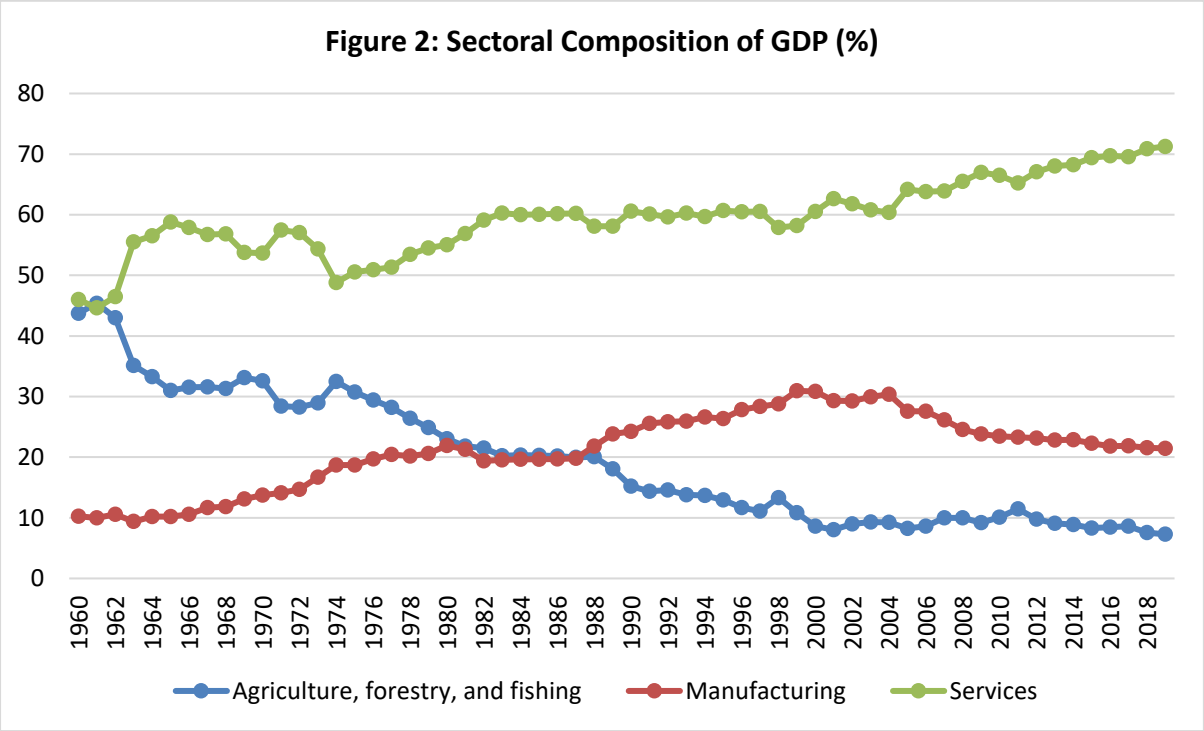

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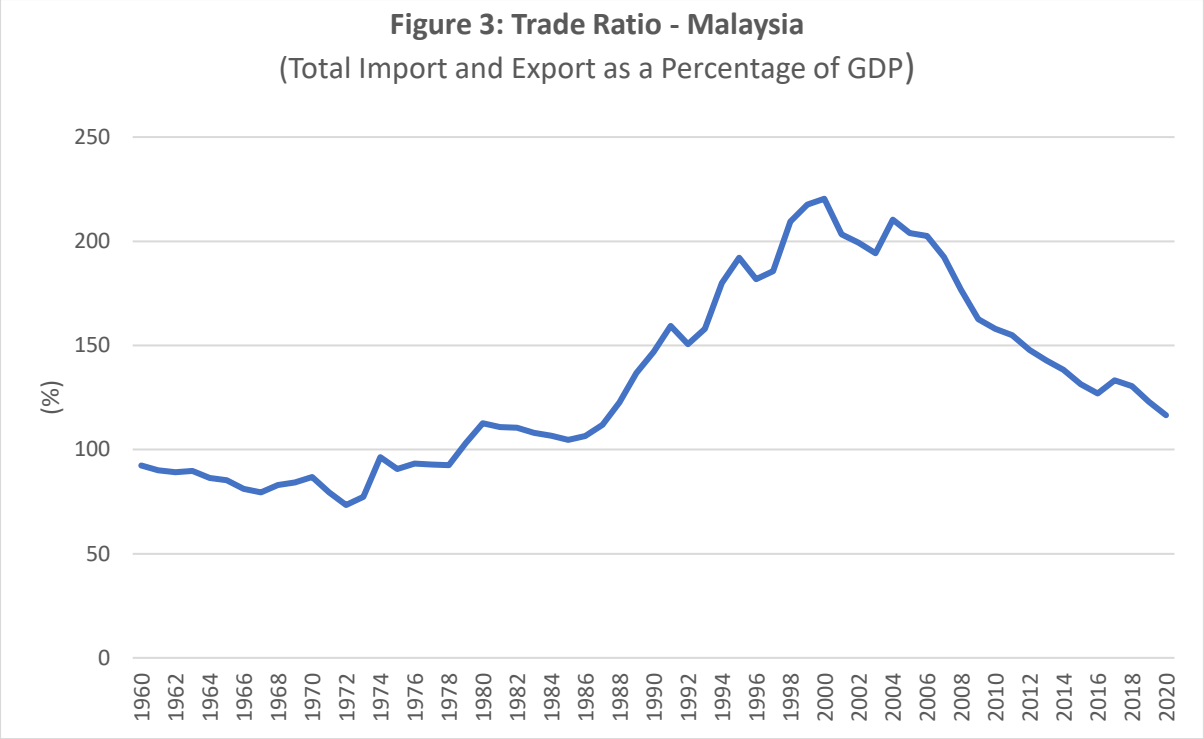

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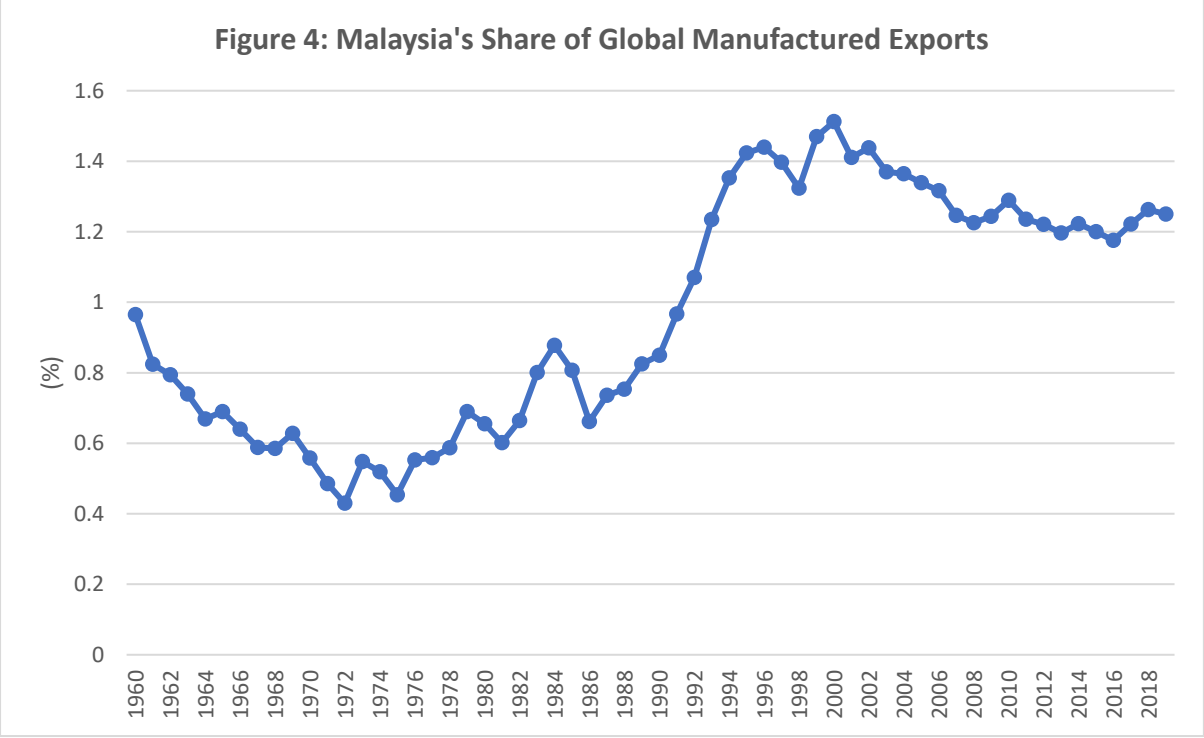

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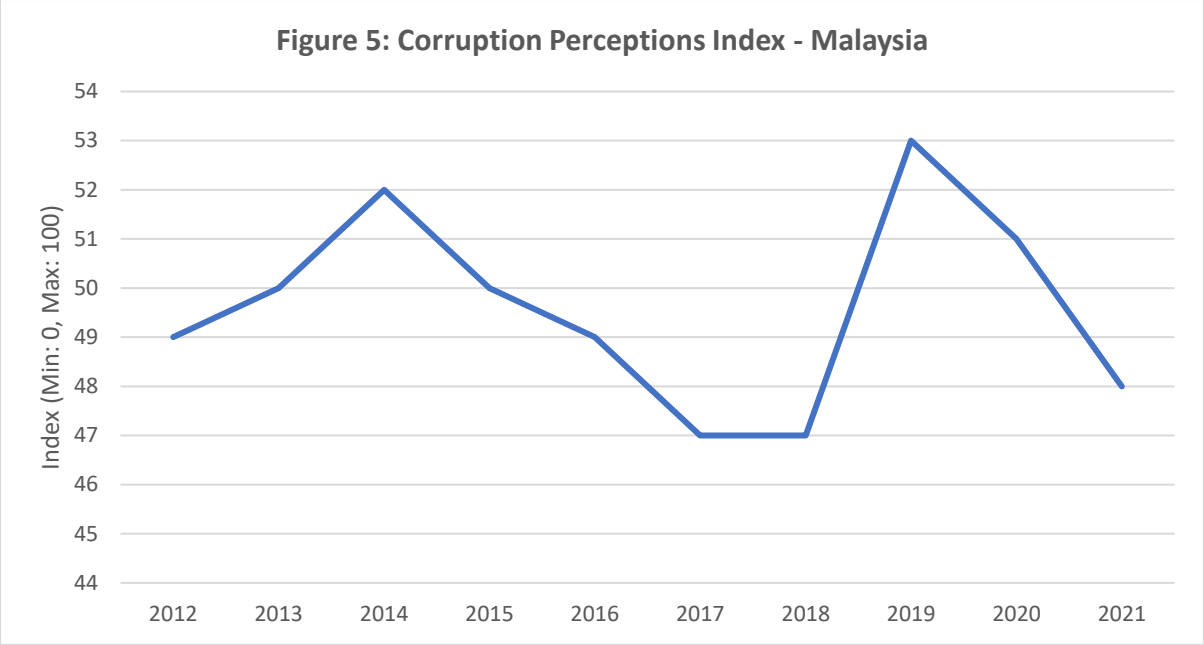
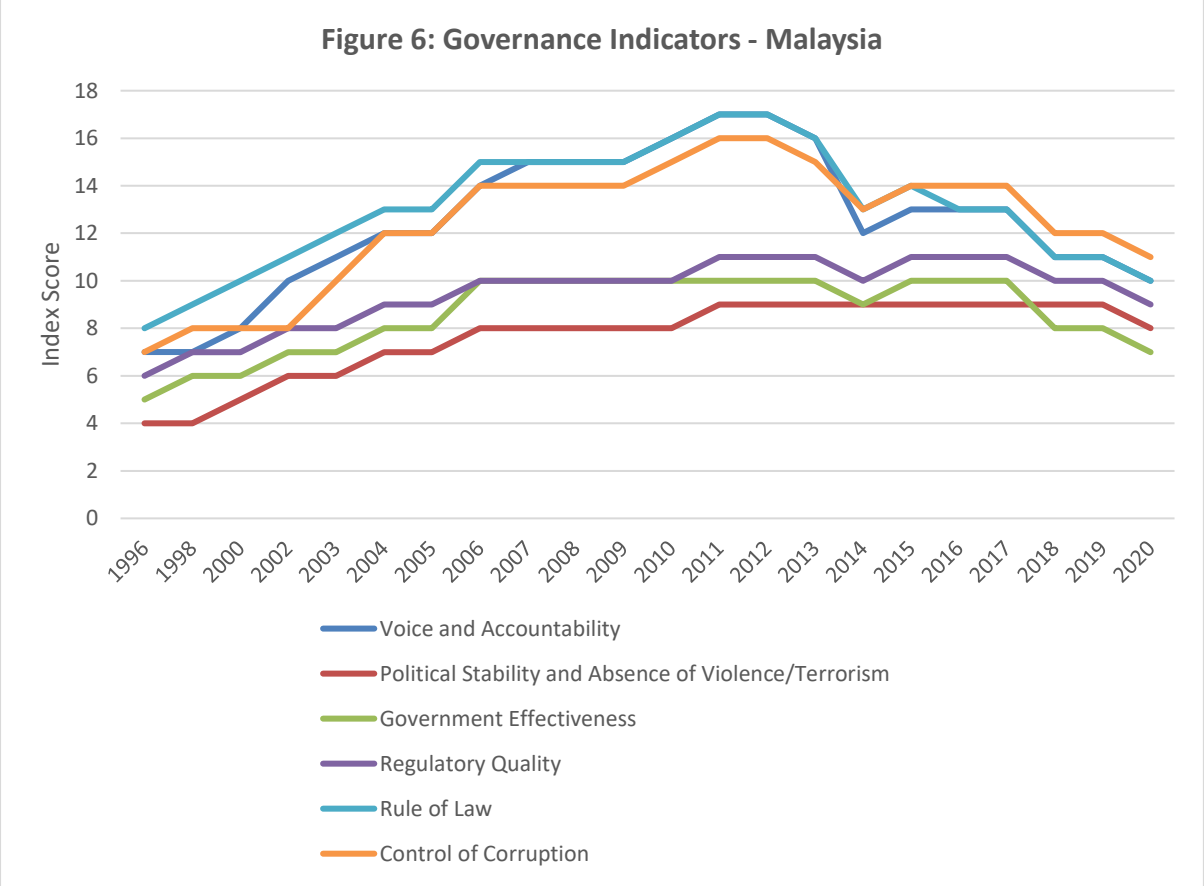
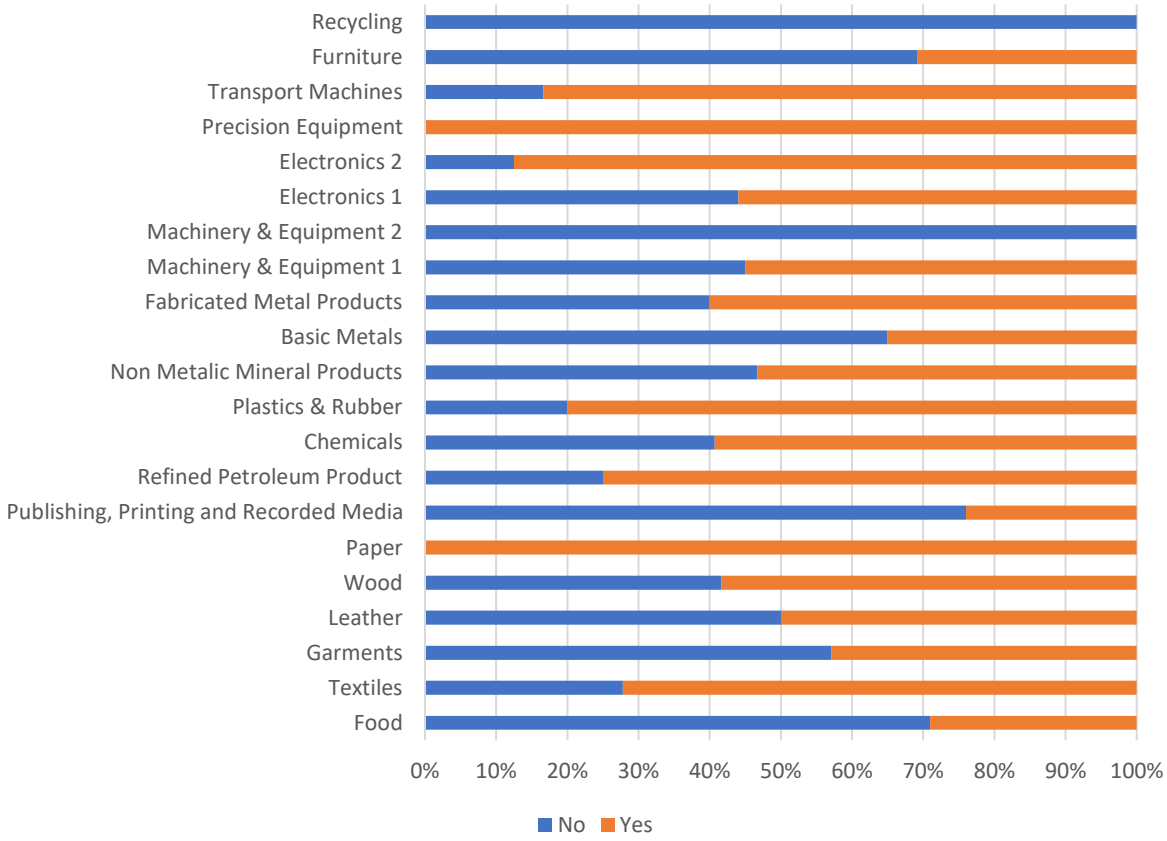


Source: Transparency International



Source: World Bank

Figure 7: Export Participation by Industry



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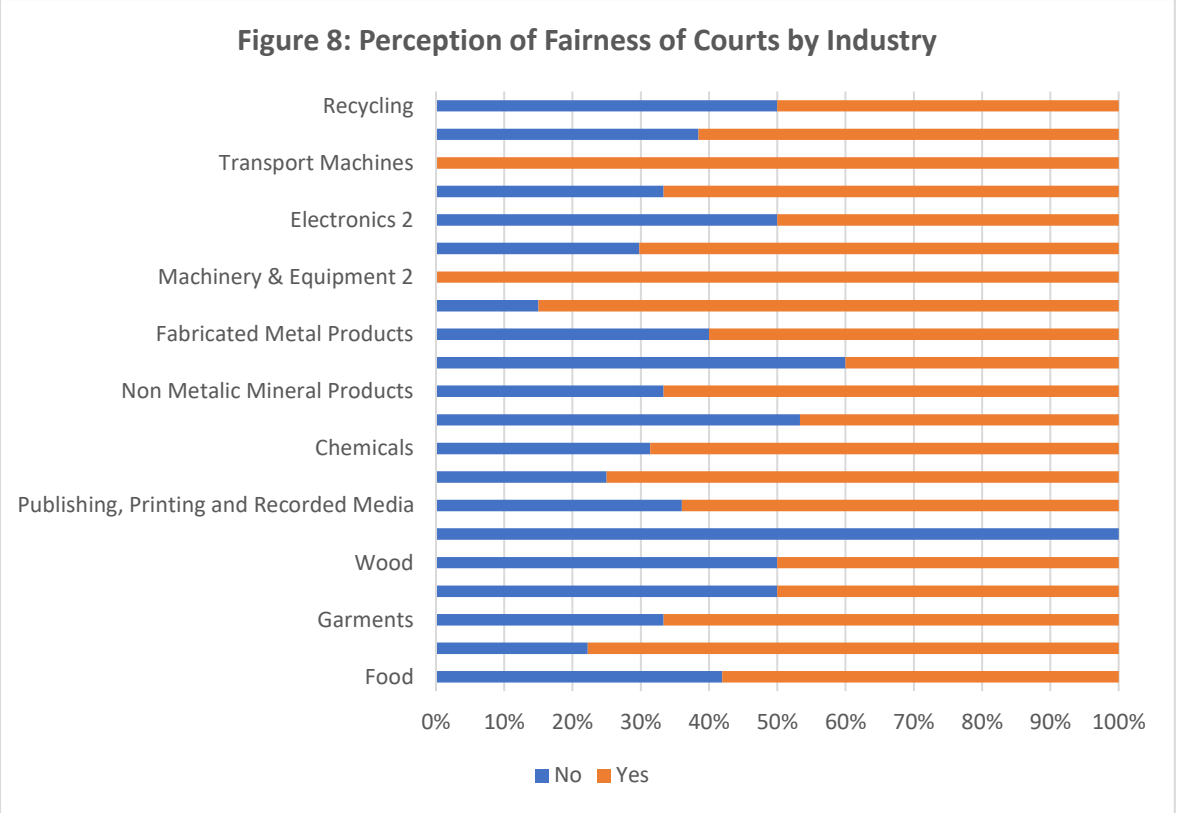

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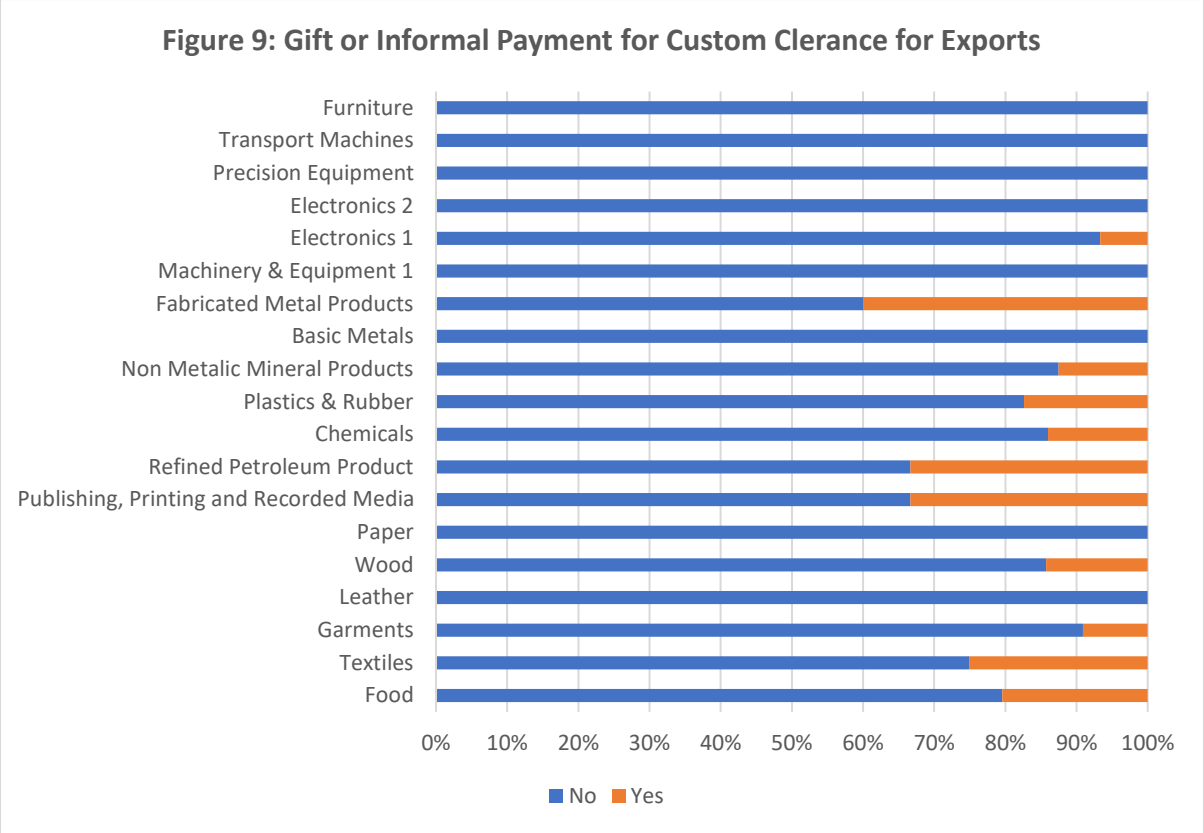

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Table 1: Measures of Governance Indicators

Indicator	Measures of Perception
Voice and Accountability	The extent to which a country's citizens are able to participate in selecting their government, as well as freedom of expression, freedom of association, and a free media.
Political Stability and Absence of Violence / Terrorism	The likelihood of political instability and/or politically motivated violence, including terrorism.
Government Effectiveness	The quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies.
Regulatory Quality	The ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development.
Rule of Law	The extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence.
Control of Corruption	The extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as "capture" of the state by elites and private interests.

Source: http://info.worldbank.org/governance/wgi/Home/Documents

Table 2: Summary Statistics

Variables	**Obs**	**Yes**	**Percent**	**No**	**Percent**
Exporting	581	292	50%	289	50%
Product Innovation	581	70	12%	511	88%
International Certification	551	220	40%	331	60%
ExportGift	263	35	13%	228	87%
CourtFairness	543	368	68%	175	32%
Age	581	45.49	203.04	8	2029
Workers	568	223.87	498.33	2	5160
Foreign Ownership (%)	581	9.06	19.44	0	100

Source: Author

Table 3: Distribution of Firms by Industry

Industry	Number	Percent
Food	155	26.68
Textiles	18	3.1
Garments	63	10.84
Leather	4	0.69
Wood	12	2.07
Paper	2	0.34
Publishing, Printing and Recorded Media	25	4.3
Refined Petroleum Product	4	0.69
Chemicals	86	14.8
Plastics & Rubber	30	5.16
Non Metallic Mineral Products	15	2.58
Basic Metals	20	3.44
Fabricated Metal Products	10	1.72
Machinery & Equipment 1	20	3.44
Machinery & Equipment 2	1	0.17
Electronics 1	84	14.46
Electronics 2	8	1.38
Precision Equipment	3	0.52
Transport Machines	6	1.03
Furniture	13	2.24
Recycling	2	0.34
Total	58	100.00

Source: Author

Table 4: Heckman - Exporting and Institutions

Variables	Selection	Outcome
Age	-0.000255	-0.00574
	(0.000226)	(0.00523)
Workers	-0.00159	-0.0222
	(0.00121)	(0.0191)
Foreign Ownership	0.00818***	0.182***
	(0.00278)	(0.0627)
Product Innovation	0.779***	17.88***
	(0.147)	(3.365)
Quality Certification	0.546***	12.71***
	(0.100)	(2.275)
Tariff	0.0174**	0.404**
	(0.00769)	(0.178)
CourtFairness	-0.836*	-18.98
	(0.506)	(11.66)
ExportGift		-2.528
		(2.513)
CourtFairness x Workers	0.00239	0.0204
	(0.00198)	(0.025)
ExportGift x Workers		0.0353
		(0.0351)
Constant	0.862**	19.78**
	(0.363)	(8.367)
Observations	505	505
Standard errors are reported in the parentheses. The likelihood-ratio test of independent equations (rho = 0): chi2(1) = 103.26		
*** p<0.01, ** p<0.05, * p<0.1		

Source: Author